8-CHANNEL SATURATED SINK DRIVERS

Low output-saturation voltages at high load currents are provided by UDN2596A and UDN2597A sink driver ICs. These devices can be used as interface buffers between standard low-power digital logic (particularly MOS) and high-power loads such as relays, solenoids, stepping motors, and LED or incandescent displays. The eight saturated sink drivers in each device feature high-voltage, high-current open-collector outputs. Transient suppression clamp diodes and a minimum 35 V output sustaining voltage allow their use with many inductive loads.

The saturated (non-Darlington) NPN outputs provide low collectoremitter voltage drops as well as improved turn-off times due to an active pull-down function within the output predrive section. The UDN2596A is for use with output loads to 500 mA while the UDN2597A is for use with loads to 1 A. Adjacent outputs may be paralleled for higher load currents.

Inputs require very low input current and are activated by a low logic level consistent with the much greater sinking capability associated with NMOS, CMOS, and TTL logic. The UDN2596A and UDN2597A are rated for use with 5 V logic levels.

Both devices are furnished in 20-pin DIP packages with copper leadframes for improved thermal characteristics. The UDN2596A is also available for operation between -40°C and +85°C. To order, change the prefix from 'UDN' to 'UDQ'.

ABSOLUTE MAXIMUM RATINGS at T_A = + 25°C

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12 GND

Dwg. No. W-100

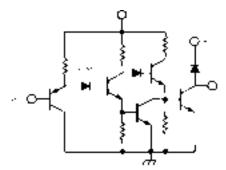
15 OUT.,

OutputVoltage,V _{CE}
Output Current, IOUT
(UDN2596A) 500 mA
(UDN2597A) 1.0 A
Supply Voltage, V _{CC} 7.0 V
Input Voltage, V _{IN}
Package Power Dissipation,
P _D 2.27 W *
Operating Temperature Range,
T _A 20°C to +85°C
Storage Temperature Range,
T _S 65°C to +150°C
*Derate at the rate of 18.2 mW/°C above
$T_A = +25^{\circ}C$

FEATURES

- Non-Inverting Function
- Low Output ON Voltages
- Up to 1.0 A Sink Capability
- 50 V Min. Output Breakdown
- Output Transient-Suppression Diodes
- Output Pull-Down for Fast Turn-Off
- TTL, CMOS Compatible Inputs
- Automotive Capable

ONE OF EIGHT DRIVERS



Dwg. No. W-101

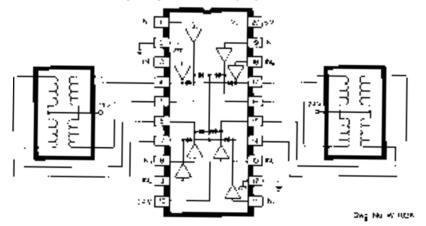


2596 AND 2597 8-CHANNEL SATURATED SINK DRIVERS

ELECTRICAL CHARACTERISTICS at T_A = +25°C, V_{CC} = 5.0 V

		Applicable			Limits	
Characteristics	Symbol	Devices	Test Conditions	Min.	Max.	Units
Output Leakage Current	I _{CEX}	Both	V _{OUT} = 50 V, V _{IN} = 2.4 V	_	10	μΑ
Output Sustaining Voltage	V _{CE(sus)}	UDN2596A	I _{OUT} = 300 mA, L = 2 mH	35	_	V
		UDN2597A	I _{OUT} = 750 mA, L = 2 mH	35	_	V
Output Saturation Voltage	V _{CE(SAT)}	UDN2596A	I _{OUT} = 300 mA	_	0.5	V
		UDN2597A	I _{OUT} = 750 mA	_	1.0	V
Clamp Diode Leakage Current	I _R	Both	V _R = 50 V	_	10	μΑ
Clamp Diode Forward Voltage	V _F	UDN2596A	I _F = 300 mA	_	1.8	V
		UDN2597A	I _F = 750 mA	_	1.8	V
Logic Input Current	I _{IN(0)}	UDN2956A	V _{IN} = 0.8 V	_	-15	μΑ
		UDN2597A	V _{IN} = 0.8 V	_	-50	μΑ
	I _{IN(1)}	Both	V _{IN} = 2.4 V	_	10	μΑ
Supply Current	I _{CC(ON)}	UDN2596A	any one driver V _{IN} = 0.8 V	_	6.0	mA
		UDN2597A	any one driver V _{IN} = 0.8 V	_	31	mA
	I _{CC(OFF)}	UDN2596A	all drivers V _{IN} = 2.4 V	0.75	1.3	mA
	· ,	UDN2597A	all drivers V _{IN} = 2.4 V	0.75	15	mA
Turn-On Delay	t _{pd0}	Both	0.5 E _{IN} to 0.5 E _{OUT}	_	3.0	μs
Turn-Off Delay	t _{pd1}	Both	0.5 E _{IN} to 0.5 E _{OUT}	_	2.0	μs

TYPICAL APPLICATION DUAL STEPPER MOTOR DRIVE



RECOMMENDED OPERATING CONDITIONS

Type Number	Logic	I _{out}
UDN2596A	5.0 V	300 mA
UDN2597A	5.0 V	750 mA

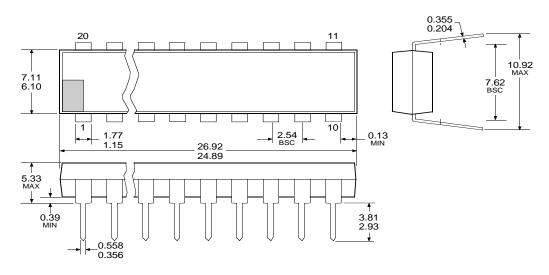
Note: Pins 2 and 12 must both be connected to power ground.



Dimensions in Inches (controlling dimensions)

0.014 0.008 20 0.430 MAX 0.280 0.240 0.300 BSC 10 0.100 BSC 0.070 0.045 _0.005 MIN 1.060 0.980 0.210 MAX 0.150 0.015 MIN 0.115 0.022 0.014 Dwg. MA-001-20 in

Dimensions in Millimeters (for reference only)



- NOTES: 1. Exact body and lead configuration at vendor's option within limits shown.
 - 2. Lead spacing tolerance is non-cumulative.
 - 3. Lead thickness is measured at seating plane or below.

2596 AND 2597 8-CHANNEL SATURATED SINK DRIVERS

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